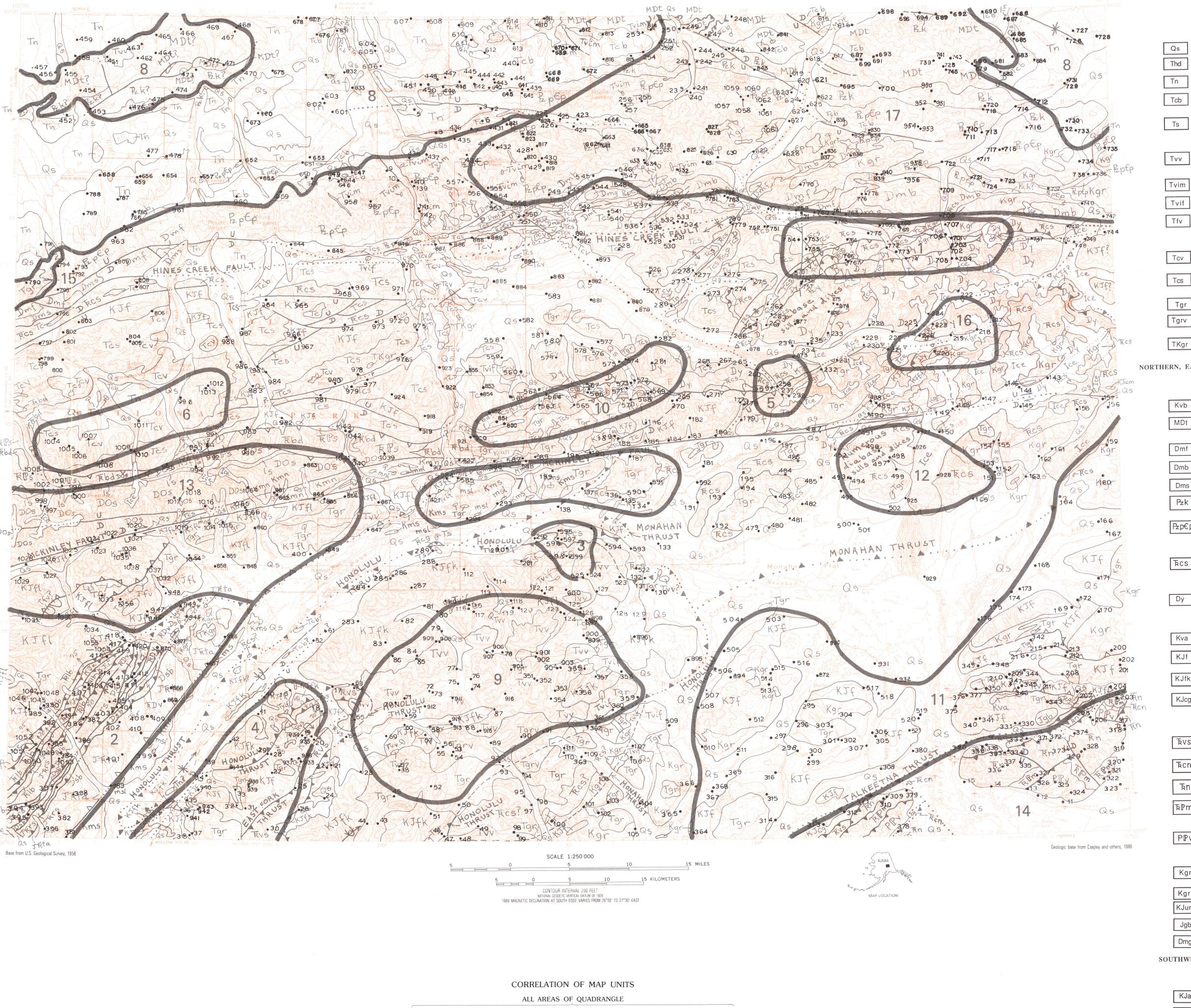
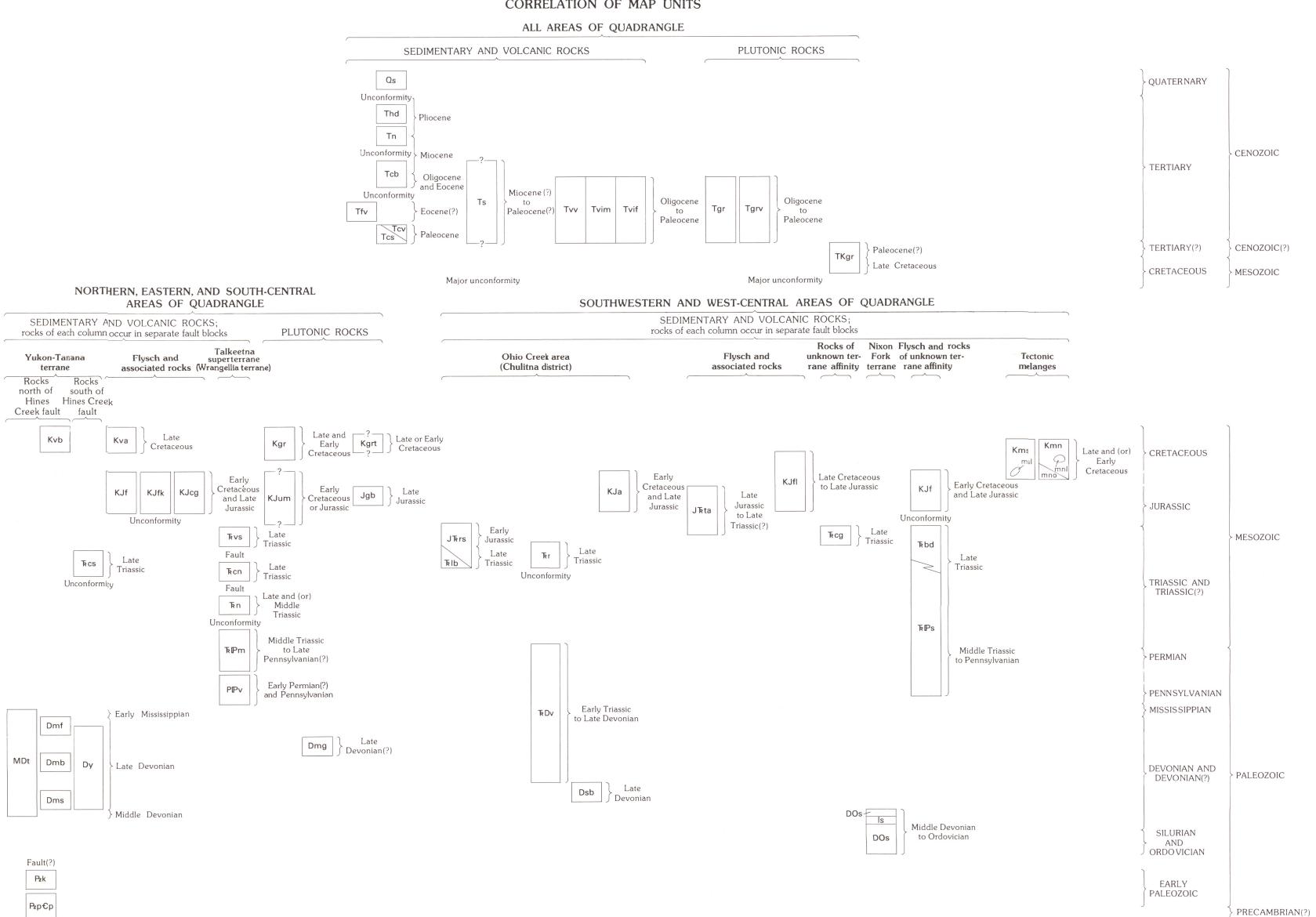
DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY





## GEOCHEMICALLY ANOMALOUS AREAS IN THE HEALY QUADRANGLE, ALASKA

## **BULLETIN 1894** PLATE 1 DESCRIPTION OF MAP UNITS ALL AREAS OF HEALY QUADRANGLE SEDIMENTARY AND VOLCANIC ROCKS Surficial deposits (Quaternary) Hornblende dacite (Pliocene) Nenana Gravel (Pliocene and Miocene)--Poorly consolidated conglomerate and sandstone Coal-bearing rocks (Miocene to Eocene)--Mainly siltstone and shale with subbituminous coal and lignite Sedimentary rocks (Miocene? to Paleocene?)--Mainly poorly consolidated shale, sandstone, siltstone, and conglomerate Volcanic rocks (Oligocene to Paleocene)--Flows, pyroclastic rocks, and subvolcanic intrusions--Subaerial volcanic rocks and subordinate dikes ranging in composition from basalt to rhyolite Felsic subvolcanic intrusive rocks-Mainly dikes of rhyolite and dacite Mafic subvolcanic intrusive rocks--Mainly dikes of basalt and subordinate andesite Fluviatile and volcanic rocks (Eocene?)-stone and a few thin flows of basaltic Cantwell Formation (Paleocene)--Volcanic rocks subunit--Flows of andesite, basalt, rhyolite, and dacite and pyroclastic felsic rocks Sedimentary rocks-- Mainly conglomerate, sandstone, and shale and a few thin coal beds and volcanic flows and tuffs PLUTONIC ROCKS Granitic rocks (Oligocene to Paleocene)--Mainly granite and granodiorite Granitic and volcanic rocks, undivided (Oligocene to Paleocene) -- Border zone between granitic rocks and Tertiary volcanic rocks Granitic and hypabyssal intrusive rocks (Paleocene? and Late Cretaceous)--Mainly granodiorite NORTHERN, EASTERN, AND SOUTH-CENTRAL AREAS OF QUADRANGLE SEDIMENTARY AND VOLCANIC ROCKS Yukon-Tanana terrane Rocks north of Hines Creek fault Basaltic subvolcanic rocks (Late Cretaceous)--Mainly dike swarms Totatlanika Schist (Early Mississippian to Middle Devonian)--Carbonaceous slate, phyllite, and schist; metachert, quartz-orthoclase-sericite schist and augen gneiss, metavolcanic rocks Felsic metavolcanic rocks (Late Devonian)--Metamorphosed rhyolite and quartz latite Metabasalt and subordinate metasedimentary rocks (Late Devonian)-Greenschist, metabasalt, Dmb and carbonaceous phyllite Metasedimentary rocks (Late Devonian)--Dms Sericite schist, black slate, and chert Keevy Peak Formation (early Paleozoic)--Mainly sericite schist, quartzite, arkosic schist, and black schist and phyllite Pelitic and quartzose schist sequence (early Paleozoic and Precambrian)--Quartz sericite (carbonate) schist, quartzite, and black phyllite Rocks south of Hines Creek fault Calcareous sedimentary rocks (Late Triassic; middle? Norian to late Karnian) -- Locally metamorphosed, carbonaceous, calcareous shale and sandstone and sandy to silty limestone. Includes sills and dikes of gabbro Yanert Fork sequence (Late Devonian)-Carbonaceous siliceous mudstone, slate, phyllite, and schist; impure quartzite and metachert, metavolcanic rocks, and marble interbeds. Also dikes and sills of gabbro Flysch and associated rocks Andesitic subvolcanic intrusive rocks (Late Cretaceous)--Hornblende andesite Flysch sequence (Early Cretaceous and Late Jurassic)--Graywacke turbidite, shale, siltstone, and conglomerate Metamorphosed in southeast part of area. Overthrust flysch-like rocks (Early Cretaceous and KJfk Late Jurassic) -- Lithology identical to unit KJf Conglomerate, sandstone, siltsone, shale, and KJcg volcanic rocks (Early Cretaceous and Late Jurassic) Talkeetna superterrane (includes Wrangellia terrane) Metavolcanic, metavolcaniclastic, and subordinate metasedimentary rocks (Late Triassic; late Norian)--Marine basalt, tuff, slate, and diabase sills. Chitistone and Nizina Limestones, undivided (Late Triassic; early Norian and late Karnian) Nikolai Greenstone (Late and (or) Middle Triassic)--Mainly subaerial flows of amygdaloidal basalt Metasedimentary rocks sequence (Middle Triassic ₽₽m to Late Pennsylvanian?) -- Black argillite, thin beds of volcanic breccia and sandstone, and limestone overlain by thin-bedded chert. Sills and dikes of gabbro Andesitic volcanic rocks (Early Permian? and PPV Pennsylvanian)--Volcanic flows and breccias, probably marine PLUTONIC ROCKS Granitic rocks (Late and (or) Early Cretaceous)--Mainly tonalite, quartz diorite, and granodiorite, generally well foliated Tourmaline-bearing granite (Late or Early Cretaceous) Kgrt Ultramafic rocks (Early Cretaceous or Jurassic)--Plagioclase-bearing peridotite Alkali gabbro (Late Jurassic) Jgb Metagabbro (Late Devonian?) Dmg SOUTHWESTERN AND WEST-CENTRAL AREAS OF QUADRANGLE SEDIMENTARY AND VOLCANIC ROCKS Ohio Creek area (Chulitna district) Argillite, chert, sandstone, and limestone (Early Cretaceous and Late Jurassic) Red and brown sedimentary rocks and basalt (Early Jurassic and Late Triassic)--Red sandstone, siltstone, conglomerate, and basalt overlain by brown sandstone and siltstone Limestone and basalt sequence (Late Triassic; Norian?) ₹1b Red beds (Late Triassic)--Red sandstone, siltstone, ₹r and conglomerate Volcanogenic and sedimentary rocks (Early Triassic to Late Devonian)--Tuffaceous chert, mudstone, and basalt breccia; flysch-like graywacke and mudstone; Serpentinite, basalt, chert, and gabbro (Late Devonian) Flysch and associated rocks Flysch sequence (Late Cretaceous to Late Jurassic) KJfl Crystal tuff, argillite, chert, graywacke, and Jīkta limestone (Late Jurassic to Late Triassic?) Rocks of unknown terrane affinity kcg Conglomerate and volcanic sandstone (Late Triassic; late Norian) Nixon Fork terrane Sedimentary rocks sequence (Middle Devonian to Ordovician)-Black argillite and siltstone, massive limestone (ls), thinly bedded limestone, and chert Flysch and rocks of unknown terrane affinity Flysch sequence (Early Cretaceous and Late Jurassic)--Same rocks as unit KJf in eastern and southern parts of quadrangle Basalt, diabase, and subordinate sedimentary rocks ₽pq (Late Triassic; Karnian and Norian) Flysch-like sedimentary rocks (Late Triassic to Pennsylvanian)--Impure sandstone, siltstone, and shale; minor limestone and chert Tectonic melanges Melange south of McKinley fault (Late and (or) Early

Cretaceous) -- Dark-gray flysch, cherty tuff, volcanic

Melange north of McKinley fault (Late and (or)Early

Cretaceous)--Similar to unit Kms but contains recrystallized limestones (mnl) and ophiolitic rocks

(mno), mainly serpentinite, basalt, and chert

Thrust fault.-Showing direction of dip of overturned thrust fault. Dashed where inferred; dotted where

dotted where concealed. Sawteeth on upper

concealed. Where displacement known, U, upthrown side, D, downthrown side; arrows indicate relative

concealed. Sawteeth on upper plate

High-angle reverse fault-Dashed where inferred;

Fault-Dashed where inferred; dotted where

horizontal movement

Anticline-- Showing direction of plunge

where inferred

• 673 Sample locality and number

4. Honolulu

Postulated position of fault prior to intrusion

Overturned anticline--Showing direction of dip

Syncline--Showing direction of plunge. Dashed

Overturned syncline--Showing direction of dip

Big Grizzly Creek
 Chulitna district
 Edmonds Creek

5. Nenana Mountain6. Polychrome Glacier

9. Upper Jack River
10. Upper Revine Creek
11. Valdez Creek
12. West Fork Glacier
13. Western McKinley fault
14. Wrangellia terrane
15. Wyoming Hills
16. Yanert Glacier

17. Yukon-Tanana terrane

7. Reindeer Hills-Pyramid Peak

8. Tertiary Nenana Gravel and coal bearing rocks

of limbs and plunge. Dashed where inferred

of limbs and plunge

of plutonic and subvolcanic rocks

Contact--Approximately located

sandstone, and blocks of limestone (msl)

Kmn